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## Factors influencing Nursing students' knowledge about Hansen's disease: a cross-section study

Eduarda Penha Garcês<sup>1</sup>, Pedro Martins Lima Neto<sup>1,2</sup>, Roberta de Araújo Silva<sup>1</sup>, Francisco Dimitre Rodrigo Pereira Santos<sup>3</sup>, Maria Aparecida Alves de Oliveira Serra<sup>1</sup>

*1 Maranhão Federal University*

*2 Imperatriz City Hospital*

*3 South Maranhão Institute of Higher Education*

### ABSTRACT

**Aim:** to identify the factors that influence Nursing students' knowledge about Hansen's disease. **Method:** this is a cross-section study with a quantitative approach, performed from May to June 2016. The sample was composed by 167 Nursing students of a public university located in the Northeastern region of Brazil. **Result:** the majority of students knows the main aspects of the disease. Factors such as being single, not having another occupation or income, to live with few other people, and search for information with professor were associated to a higher level of understanding about leprosy. Female students demonstrated less chances to know about Hansen's disease. **Conclusion:** Nursing students know about leprosy, however there are still questions regarding the transmission of the illness.

**Descriptors:** Leprosy; Education, Nursing; Students, Nursing; Knowledge.

## INTRODUCTION

Hansen's disease is an infectious disease caused by the intracellular bacillus *Mycobacterium leprae*, which main clinical manifestations are dermato-neurological lesions that lead to the appearance of physical and psychosocial limitations (1).

Besides the efforts from domestic and international organizations to eliminate the illness, it is yet an important public health issue, which affects in special the less economically favored segments of the societies(2). Brazil is the second world largest country in the world with new leprosy cases, only behind India in this index(3).

In the country, after 2010, there was a reduction of prevalent rates, however the number of new cases with an advanced level of physical impairment are still elevated, above the rates found in China, India, and Thailand(4). Besides some regions in Brazil have registered decrease rates, the North, the Central-West, and the Northeast regions still have considerably high levels of leprosy records(2).

The potential reasons to have Hansen's disease present in endemic areas are related to the late detection and treatment, the underreporting of cases, scarce housing and overcrowding conditions, low education level, poverty, and migratory movements, which all help to spread the disease(5,6). It is worth to mention that a continuous contact with infected people is the most important route of contamination, thus leading to the constant transmission of the illness(7, 8).

The control of the aggravation consists in an early diagnose and treatment with polychemotherapy (PCT). Health professionals must be able to perform the proper diagnose of Hansen's disease through an active search of cases in the community, and by the dermato-neurological exam, searching for wounds or areas of the

skin with changes in sensibility, which can be associated or not to a commitment of peripheral nerves(9).

Among the health professionals responsible to accompany the client with Hansen's disease, there is the nurse, who must be able to provide a holistic care to the individual, and to perform the preventive and control actions against the illness among the community(10). Therefore, the higher education institutes must prepare future professionals to work in the scenario of health care, placing them in situations in which they will be require to confront the reality, thus assimilating concepts, recognizing clinical formats, and questioning solutions, searching to improve patient's care.

Based on the fact that have added extra challenges to the control of leprosy, the low level of information about the illness among Nursing students and professionals, and from other areas of health, is relevant in this study, once taking into consideration that the teaching about Hansen's disease is being neglected in Universities that have Health programs, even in endemic countries(11).

Therefore, to identify the knowledge of Nursing students about Hansen's disease and the factors that influence its learning process will contribute to a more qualified education of future professionals, and it will subsidize health actions to be developed by nurses in the prevention, treatment, and control of the disease.

According to this context, this research aims to identify the factors that influence the knowledge of Nursing students about Hansen's disease.

## METHOD

This is a cross-section study performed in a public university of the Brazilian state of Ma-

ranhão, placed in the Northeastern region of the country. During the period of observation, there were 186 students enrolled in the undergraduate program in Nursing. The calculation of the sample was done using a formula for a finite population. It was adopted a prevalence of 50%, in order to provide a maximum sample size, in a level of significance of  $\alpha=0.05$  and an absolute sample error of 4%. The size expected for the sample reached 126 individuals. Considering loss of information in questionnaires by wrong and/or incomplete answers, the final sample size totaled 167 students.

The selection of the participants was performed randomly, considering the established criteria of eligibility. The criteria of inclusion were students from both genders, from the third to the eight semester, regularly enrolled in the institution. The criterion of exclusion was if the student had any sort of pendency with the coordination of the Nursing program.

The instrument used to collect data was a questionnaire involving socio-demographic characteristics, sources used to acquire knowledge about Hansen's disease, and the understanding of students about the illness. Before the effective data collection process, the questionnaire was pre-tested in ten participants. After the pre-test, some questions were reviewed, and later, the data collection ensued.

For this collection, it was ministered a training of 30 hours with the field researchers. It was performed during the period from May to June 2016. The recruiting of college students was performed in the classrooms after the clarification about the objectives and methods of the research. Those who agreed signed a Free and Clear Consent Agreement (FCCA), and answered the questionnaire.

As variables, it was defined that: the outcome, or in other words, the knowledge

from the students about Hansen's disease, and as the independent variable, the socio-demographic information (gender, age, marital status, religion, ethnic background, year of conclusion of high school, enrollment in another undergraduate program, paid occupations, amount of people living with the student, means of transportation, access to private health services), and the sources of updating information about the illness (scientific articles, journals and folders, websites, library, extension courses, study groups, congresses, symposiums, and lectures, search for information with professors and health professionals).

Data processing and statistical analysis were performed through the software Statistical Package for the Social Science®, version 22.0. The quantitative variables were presented through descriptive statistics (average and standard deviation), and the qualitative ones through proportion and confidence interval (95%). First, it was performed the Kolmogorov-Smirnov test to evaluate the normality of quantitative variables. To observe the association between the variables, it was applied the Pearson's Chi-Square test. Its effect was measured through a chance ration, considering the level of significance of  $p<0.05$ .

The study was guided by the regulations about the research with human beings, according to the Resolution #466/2012 of the Brazilian National Health Council/Brazilian Ministry of Health. The project was approved by the Committee of Ethics in Research of Maranhão Federal University, under protocol #1,412,755.

## RESULTS

From the 167 Nursing students interviewed, 76.6% were female; the age varied between 18

to 51 years old, with an average age of 24.2 years old (standard deviation of 5.32); 73.1% were black or mixed; 77.8% were single; 78.4% had a religion; 85% did not have a paid occupation; 83.2% reside with up to four people; 73.7% used public transportation; 86.8% did not use private health service; 78.4% finished their high school education in public schools; and 87.4% did not seek other undergraduate program.

In regards to the information about leprosy, the majority of Nursing students showed adequate knowledge about the illness. The largest errors were seen in regards to the transmission of Hansen's disease: 46.7% of the students are unaware of the main route of transmission of the illness (Chart 1).

**Chart 1.** Knowledge of Nursing students about Hansen's disease (n= 167). Imperatriz, Brazil, 2016.

Understanding about Hansen's disease	
Understanding	Correct Answers n (%)
Etiological Agent	146 (87.4)
Signs and Symptoms	155 (92.8)
Policies for Control	161 (96.4)
Cure for the Disease	154 (92.2)
Transmission of the Disease	89 (53.3)
Conduct from the Diagnose	139 (83.2)
Disability from the Disease	131 (78.4)
Treatment of the Disease	145 (86.8)

Source: designed by the authors.

It was observed that 65.3% of the Nursing students acquire information about Hansen's disease in journals and folders; 50.3% search for information from professors, and 46.6% use scientific articles. The majority of the Nursing students does not search for information about the illness through extension courses (82.6%), study groups (76%), and questions directed to the health professional (70.1%) (Chart 2).

**Chart 2.** Sources of information about Hansen's disease according Nursing students (n=167). Imperatriz, Brazil, 2016.

Source of information	Yes n (%)	No n (%)
Scientific Articles	78 (46.7)	89 (53.3)
Journals and Folders	109 (65.3)	58 (34.7)
Websites	58 (34.7)	109 (65.3)
Library	77 (46.1)	90 (53.9)
Extension Courses	29 (17.4)	138 (82.6)
Study Groups	40 (24)	127 (76)
Congresses, Symposiums, and Lectures	59 (35.3)	59 (35.3)
Search for information with professors	84 (50.3)	83 (49.7)
Search for information with health professionals	50 (29.9)	117 (70.1)

Source: designed by the authors.

In regards to the quantity of questions about Hansen's disease that each student answered correct, it was seen that 53.3% (78/167) of the students achieved more than 50% of the questions right. Female students demonstrated less chances of correct answers about leprosy ( $p=0.058$ ; chance ratio=0.72). single students had less chances to miss the questions when compared to the married ones ( $p=0.041$ ; chance ratio=0.63), a considered significant statistical association (Chart 3).

Nursing students that were not enrolled in other undergraduate program ( $p=0.001$ ; chance ratio=3.59), without a paid occupation ( $p=0.04$ ; chance ratio=1.78), and that were living with up to four people ( $p=0.05$ ; chance ratio=1.42) demonstrated higher chances to answer right about leprosy, thus considered a significant statistical association (Chart 3).

It was seen that the Nursing students who did not search for information about the illness in extension courses had more correct answers about Hansen's disease ( $p=0.02$ ; chance ratio=12.83). Students who searched for information about the illness with professors had lesser chances to commit mistakes in the questions

**Chart 3.** Association of socio-demographical factors with the knowledge of Nursing students about Hansen's disease (n=167). Imperatriz, Brazil, 2016.

Socio-demographic Characteristics	Knowledge about Hansen's disease		p	RC	95%IC
	>50% Correct n (%)	<50% Correct n (%)			
<b>Gender</b>					
Male	23 (29,4)	16 (17,9)	0,058*	0,72	0,25-0,08
Female	55 (70,6)	73 (82,1)			
<b>Age</b>					
Below 18 years old	18 (23)	14 (15,7)	0,229	1,26	0,88-1,81
Above 18 years old	60 (77)	75 (84,3)			
<b>Marital Status</b>					
Married	12 (15,3)	25 (28,0)	0,041*	0,63	0,38-1,04
Single	66 (84,7)	64 (72,0)			
<b>Religion</b>					
No	14 (17,9)	22 (24,7)	0,28	0,79	51,0-1,24
Yes	64 (82,1)	67 (75,3)			
<b>Ethnic Background</b>					
Black/Mixed	60 (76,9)	62 (69,6)	0,29	1,23	0,82-1,83
White	18 (23,1)	27 (30,4)			
<b>High School</b>					
Public	61 (78,2)	70 (78,6)	0,94	0,98	0,66-1,45
Private	17 (21,8)	19 (21,4)			
<b>Other Undergraduate</b>					
No	75 (96,1)	71 (79,7)	0,001*	3,59	1,24-10,3
Yes	3 (3,9)	18 (20,3)			
<b>Paid Occupation</b>					
No	71 (91,0)	71 (79,7)	0,04*	1,78	0,93-3,42
Yes	7 (9,0)	18 (20,3)			
<b>How many people share housing</b>					
Up to four people	62 (79,4)	60 (67,4)	0,05*	1,42	0,92-2,19
More than four people	16 (20,6)	29 (30,0)			
<b>Means of Transportation</b>					
Public	58 (74,2)	65(73,0)	0,84	1,03	0,71-1,50
Private	20 (25,8)	24 (27,0)			
<b>Private Health Service</b>					
No	69 (88,4)	76 (85,3)	0,55	1,16	0,68-1,97
Yes	9 (11,6)	13 (14,7)			

\*Level of significance  $p < 0.05$ .

Source: designed by the authors.

about leprosy ( $p=0.05$ ; chance ratio=0.74), a significant statistically association (Chart 4).

## DISCUSSION

This study tried to identify the factors that influence the knowledge from Nursing students

about Hansen's disease in a public university located in the Northeast of Brazil, an endemic region for the illness. The majority of the students knew the main aspects of the disease, however, an expressive amount of individuals is unaware of the main mode of contagion.

The mode of transmission of Hansen's disease, explained and spread by the programs

**Chart 4.** Association of the sources of information about the illness and the knowledge of Nursing students about Hansen's disease (n=167). Imperatriz, Brazil, 2016.

Source of information	Knowledge		p	RC	95%IC
	>50% Correct n (%)	<50% Correct n (%)			
<b>Scientific Articles</b>					
Yes	35 (44,8)	43 (48,3)	0,65	1,07	0,77-1,49
No	43 (55,2)	46 (51,7)			
<b>Journals and Folders</b>					
Yes	52 (66,6)	57 (64)	0,72	0,94	0,66-1,32
No	26 (33,4)	32(36)			
<b>Websites</b>					
Yes	30 (38,4)	28 (31,4)	0,34	0,85	0,61-1,18
No	48 (61,6)	61 (68,6)			
<b>Library</b>					
Yes	38 (48,7)	39 (43,8)	0,52	0,90	0,65-1,24
No	40 (51,3)	50 (56,2)			
<b>Extension Courses</b>					
Yes	8 (10,1)	11 (12,3)	0,02*	1,83	0,99-3,39
No	70 (89,9)	78 (87,7)			
<b>Study Groups</b>					
Yes	18 (23)	22 (24,7)	0,80	1,05	0,71-1,54
No	60 (77)	67 (75,3)			
<b>Congresses, Symposiums, and Lectures</b>					
Yes	28 (35,8)	31 (34,8)	0,88	0,97	0,69-1,36
No	50 (64,2)	58 (65,2)			
<b>Search information with professors</b>					
Yes	45 (57,6)	39 (48,8)	0,05*	0,74	0,53-1,03
No	33 (42,4)	50 (51,2)			
<b>Search information with health professionals</b>					
Yes	22 (28,2)	28 (31,4)	0,64	1,08	0,75-1,58
No	56(71,8)	61 (69,6)			

\* Level of significance  $p < 0.05$ .

Source: designed by the authors.

of disease control under domestic and international context, consists in the transmission of the bacillus by the ill person, without treatment, through an intimate and continuous contact, which is present mostly in family environments. The transmission from human to human, through respiratory droplets that contain *Micobacterium leprae*, have been traditionally considered as the catalyst in the transmission of Hansen's disease, due to the findings of the bacillus in secretions present in the nasopharynx of ill individuals(8,11).

In respect to the sources of information about Hansen's disease, this research has found that the majority of students used journals and

folders to learn more about the illness, followed by consultations with professors. Hence, it is suggested students have a higher preference for these printed sources and to their masters, and little interest in extension courses, contacts with health professionals, and other electronic media.

A study performed with health sciences students from Tanzania(12) has identified that printed sources were more used, and showed the challenges students faces with operating and accessing electronic sources. As a contrast, a study performed in the United States of America(13) showed a priority given to electronic information sources by health students, once

they were more accustomed, and it was better accessible for them to use these sources.

This analysis showed that the female gender was the majority and it was associated to a lower level of knowledge about leprosy. Women, in the majority of cases, need to conciliate domestic activities with academic demands. Thus, it is believed that the excessive number of accumulated tasks can interfere in the dedication and performance as a student, contributing to the reduction of time dedicated to the search for knowledge about Hansen's disease(14,15).

The single students had more understanding about leprosy, which suggests a larger availability to dedicate themselves to studying, a fact that is not observed many times in married individuals, who have home responsibilities and roles that can interfere in the time dedicated to the search for knowledge. The students that lived with less amount of people presented better understanding about the disease, a suggestion that tranquil housing environments are more favorable to the search for knowledge(15,16).

In this study, students that did not a paid occupation and were not studying another undergraduate program had more understanding about leprosy, showing that the non-commitment of students in other activities that demanded mandatory workload permits that these students have more availability to search for information regarding the disease, thus amplifying their knowledge. Studies have shown that paid occupations for Nursing students lead to lesser academic performance due to the lack of time to search for information(17,18,19).

The present study showed that students that searched for information about leprosy in the content transmitted by their professor had less understanding from the illness that those who tried to learn the disease through extension activities. This data reflects higher accessibility and trust of students in the information given

by professors, and reduced extension activities, less attractive ones, in the search for the understanding of the disease.

A research performed in India, an endemic country for Hansen's disease, has shown that Nursing students learned more about the pathology during their practices in health service units. The acquisition for understanding was larger when they assisted patients under this infection(11). Under this perspective, it was observed that the experiences of community extension consist in spaces for experimentation that contribute to amplify the knowledge of students, once they connect theory and practice.

In front of the above, it is necessary to adopt institutional strategies to improve the offering and the quality of the extension activities about Hansen's disease as means to get closer to the professors of the academic community and the health services, amplifying the knowledge about the disease, and preparing future nurses to provide a qualified assistance to their patients.

During the development of this work, there were some limitations – such as having a sample from one single university, for example. Therefore, the generalization of results, in regards to the general population, was reduced. As it is a cross-over study, it was not possible to follow up the participants of the study regarding their understanding about Hansen's disease. The evaluation was done only based on a self-report, and there was no other trustworthy measurement to analyze the reports. In the end, the memory bias, once it was investigated only the Hansen's disease, an element seen in many subjects throughout the undergraduate program in Nursing.

Therefore, even with the limitations before mentioned, the result of this result becomes relevant, once it contributes to the improvement in the quality of teaching, in the formation of future nurses, and in the construction of adequate strategies to the necessities of this clientele.

## CONCLUSION

The research has shown that the majority of students in Nursing has knowledge about leprosy, however there are still doubts regarding the mode of transmission of the illness. The female gender was associated to a less understanding about the illness, and the single bachelors, without a paid occupation or another undergraduate study, and lived with few people had better domain on the topic. The main source of information used by Nursing students, which permitted a better understanding about the illness, was the search for information from professors. The extension activities did not contribute to improve the understanding of students about Hansen's disease.

## REFERENCES

1. White C, Franco-Paredes C. Leprosy in the 21st century. *Clin Microbiol Rev.* [Internet] 2015 Jan [cited 2016 jan 25]; 28 (1): 80–94. Available from: <http://cmr.asm.org/content/28/1/80.full>. doi:<http://dx.doi.org/10.1128/CMR.00079-13>
2. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde. Boletim epidemiológico. Situação epidemiológica da hanseníase no Brasil: análise de indicadores selecionados na última década e desafios para eliminação. Brasília: Ministério da Saúde [Internet]; 2013; 44(11):1-12. [cited 2016 jan 22]. Available from: <http://portalsaude.saude.gov.br/images/pdf/2014/junho/11/BE-2013-44-11---Hanseníase.pdf>
3. Rodrigues LC, Lockwood DNJ. Leprosy now: epidemiology, progress, challenges, and research gaps. *Lancet Infect Dis.* [Internet] 2011 Jun [cited 2016 jan 25]; 11 (6): 464-70. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/21616456>. doi: [http://dx.doi.org/10.1016/S1473-3099\(11\)70006-8](http://dx.doi.org/10.1016/S1473-3099(11)70006-8).
4. Alberts CJ, Smith WC, Meima A, Wang L, Richardus JH. Potential effect of the World Health Organization's 2011-2015 global leprosy strategy on the prevalence of grade 2 disability: a trend analysis. *Bull World Health Organ.* [Internet] 2011 Apr [cited 2016 jan 25]; 89 (7): 487-95. Available from: <http://www.who.int/bulletin/volumes/89/7/10-085662/en/>. doi:<http://dx.doi.org/10.2471/BLT.10.085662>
5. Lockwood DNJ, Shetty V, Oliveira Penna G. Hazards of setting targets to eliminate disease lessons from the leprosy elimination campaign. *BMJ.* [Internet] 2014 Feb [cited 2016 jan 25]; 348:g1136. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24508610>. doi:<http://dx.doi.org/10.1136/bmj.g1136>
6. Smith WC, van Brakel W, Gillis T, Saunderson P, Richardus JH. The missing millions: a threat to the elimination of leprosy. *PLoS Negl Trop Dis.* [Internet] 2015 Apr [cited 2016 jan 25]; 9 (4): e0003658. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4408099/>. doi:<http://dx.doi.org/10.1371/journal.pntd.0003658>.
7. Bratschi MW, Steinmann P, Wickenden A, Gillis TP. Current knowledge on Mycobacterium leprae transmission: a systematic literature review. *Leprosy Rev.* [Internet] 2015 Jun [cited 2016 jan 25]; 86(2): 142–55. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26502685>
8. Mensah-Awere D, Bratschi MW, Steinmann P, Fairley JK, Gillis TP. Developing strategies to block the transmission of leprosy. *Leprosy Rev.* [Internet] 2015 Jun [cited 2016 jan 25]; 86:156–64. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26502686>
9. Polycarpou A, Walker SL, Lockwood DN. New findings in the pathogenesis of leprosy and implications for the management of leprosy. *Curr Opin Infect Dis.* [Internet] 2013 Oct [cited 2016 jan 25]; 26(5): 413–9. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/23982232>. doi:<http://dx.doi.org/10.1097/QCO.0b013e3283638b04>
10. Rodrigues FF, Calou CG, Leandro TA, Antezana FJ, Pinheiro AK, Silva VM, Alves MD. Knowledge and practice of the nurse about leprosy: actions of control and elimination. *Rev Bras Enferm.* [Internet] 2015 Mar-Apr [cited 2016 jan 25]; 68(2):297-304. Available from: <http://www.scielo.br/pdf/reben/v68n2/0034-7167-reben-68-02-0297.pdf>. doi:<http://dx.doi.org/10.1590/0034-7167.2015680216i>



11. Rajkumar E, Julious S, Salome A, Jennifer G, John AS, Kannan L, Richard J. Effects of environment and education on knowledge and attitude of nursing students to-wards leprosy. *Indian J Lepr.* [Internet] 2011 Jan-Mar [cited 2016 jan 25]; 83(1):37-43. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/21638982>
12. Haruna H, Tshuma N, Hu X. Health Information Needs and Reliability of Sources Among Nondegree Health Sciences Students: A Prerequisite for Designing eHealth Literacy. *Ann Glob Health.* [Internet] 2017 Mar-Apr [cited 2017 jul 16]; 83(2):369-379. Available from: [http://www.annalsofglobalhealth.org/article/S2214-9996\(17\)30596-9/fulltext](http://www.annalsofglobalhealth.org/article/S2214-9996(17)30596-9/fulltext) doi: 10.1016/j.aogh.2017.03.516.
13. Saparova D, Nolan NS. Evaluating the appropriateness of electronic information resources for learning. *J Med Libr Assoc.* [Internet] 2016 Jan [cited 2017 jul 17]; 104(1):24-32. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4722638>. doi: 10.3163/1536-5050.104.1.004.
14. Deatherage S, Servaty-Seib HL, Aksoz. Stress, coping, and internet use of college students. *J Am Coll Health.* [Internet] 2014 [cited 2017 jul 18]; 62(1):40-6. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/24313695>. doi: 10.1080/07448481.2013.843536.
15. Pereira CA, Miranda LCS, Passos JP. O estresse e seus fatores determinantes na concepção dos graduandos de enfermagem. *Rev. Min. Enferm.* [Internet] 2010 Abr-Jun [cited 2017 jul 18]; 14(2): 204-209. Available from: <http://www.reme.org.br/artigo/detalhes/107> doi: <http://www.dx.doi.org/S1415-27622010000200009>
16. Bublitz S, Guido LA, Kirchof RS, Neves ET, Lopes LFD. Sociodemographic and academic profile of nursing students from four brazilian institutions. *Rev Gaúcha Enferm.* [Internet] 2015 mar-Jun [cited 2017 jul 18]; 36(1):77-83. Available from: <http://www.seer.ufrgs.br/RevistaGauchadeEnfermagem/article/view/48836>.
17. Salamonson Y, Everett B, Koch J, Andrew S, Davidson PM. The impact of term-time paid work on academic performance in nursing students: a longitudinal study. *Int J Nurs Stud.* [Internet] 2012 May [cited 2017 jul 16]; 49(5):579-85. Available from: [http://www.journalofnursingstudies.com/article/S0020-7489\(11\)00409-3/fulltext](http://www.journalofnursingstudies.com/article/S0020-7489(11)00409-3/fulltext) doi: 10.1016/j.ijnurstu.2011.10.012.
18. Schoofs N, Bosold S, Slot V, Flentje J. Nursing student employment: impact on academic achievement. *Nurse Educ.* [Internet] 2008 Mar-Apr [cited 2017 jul 17]; 33(2):57-8. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/18317313> doi: 10.1097/01.NNE.0000299501.32529.44.
19. Rochford C, Connolly M, Drennan J. Paid part-time employment and academic performance of undergraduate nursing students. *Nurse Educ Today.* [Internet] 2009 Aug [cited 2017 jul 18]; 29(6):601-6. Available from: [http://www.nurseeducationtoday.com/article/S0260-6917\(09\)00016-1/fulltext](http://www.nurseeducationtoday.com/article/S0260-6917(09)00016-1/fulltext). doi: 10.1016/j.nedt.2009.01.004.

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